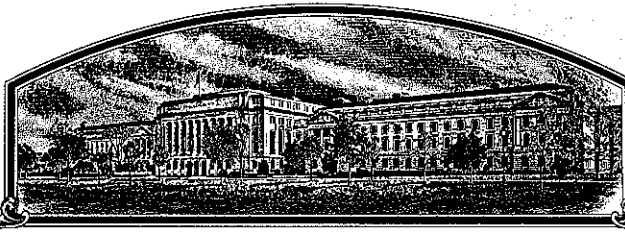


No.

9500011



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Western Plant Breeders**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

**WHEAT**

**'Aruba'**

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of October in the year of our Lord one thousand nine hundred and ninety-five.*

Attest:

*Marsha A. Stanton*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*John F. Whitman*  
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

**APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE**  
(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>Western Plant Breeders</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. <b>PH888-169</b>	3. VARIETY NAME <b>ARUBA</b>
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>8111 Timberline Drive Bozeman, MT 59715</b>		5. PHONE (include area code) <b>(406) 587-1218</b>	<b>FOR OFFICIAL USE ONLY</b> VPPO NUMBER <b>9500011</b> F I L I N G Date <b>October 17, 1994</b> <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M. F E E S Filing and Examination Fee: \$ <b>2325.00</b> R E C E I V E D Date <b>Oct. 17, 1994</b> Certificate Fee: \$ <b>300.00</b> Date <b>Oct. 2, 1995</b>
6. GENUS AND SPECIES NAME <b>Triticum durum</b>	7. FAMILY NAME (Botanical) <b>Gramineae</b>	9. DATE OF DETERMINATION <b>May 1, 1992</b>	
8. CROP KIND NAME (Common Name) <b>Durum wheat</b>		10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Arizona</b>	12. DATE OF INCORPORATION <b>August 24, 1990</b>		
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS			

**Kim C. Shantz** 6720 W. Chicago Street #4  
**Western Plant Breeders, Inc.** Chandler, AZ 85226-3300

PHONE (include area code): **(602) 940-7654**

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

a. ☒ Exhibit A, Origin and Breeding History of the Variety.  
b. ☒ Exhibit B, Novelty Statement.  
c. ☒ Exhibit C, Objective Description of Variety.  
d. ☐ Exhibit D, Additional Description of Variety.  
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.  
f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office \_\_\_\_\_  
g. ☒ Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)  
☐ YES (If "YES," answer items 16 and 17 below) ☒ NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  
☐ YES ☐ NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?  
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

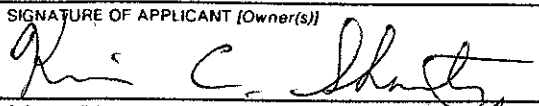
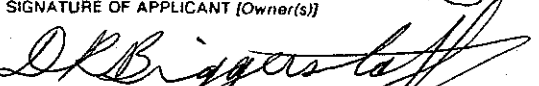
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?  
☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date: \_\_\_\_\_.)  
☒ NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?  
☒ YES (If "YES," give names of countries and dates) **December, 1993. United States.**  
☐ NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s)) 	CAPACITY OR TITLE <b>Wheat Breeder</b>	DATE <b>9/16/94</b>
SIGNATURE OF APPLICANT (Owner(s)) 	CAPACITY OR TITLE <b>General Manager</b>	DATE <b>9-30-94</b>

14A.

## Origin and Breeding History

ARUBA is a spring durum wheat selected from a Western Plant Breeders' generated composite cross designated 8C Alpha CHA-85 made in 1985. 8C Alpha CHA-85 was formed by crossing advanced durum lines with selected short strawed entries from a preliminary evaluation experiment designated 8C. Crossing was facilitated by using a Chemical Hybridization Agent on experiment 8C. Forty crosses were bulked together and the F1 was grown at Bozeman, MT in 1985. Two generations were grown each year and selected F4 head rows were planted at Phoenix, Arizona in 1987. Spikes were selected out of desirable rows and were planted in F5 rows at Phoenix in 1988. One row designated as PH888-169 was harvested in bulk and yield tested in the desert durum area in 1989, 1990, 1991, and 1992. In 1990, spikes were selected and grown as head rows at Bozeman, MT. 74 non segregating, uniform rows were selected and grown as head row plots in Phoenix, Arizona in 1991. 60 uniform, non segregating head rows were bulked together to form the breeders' seed of PH888-169. The resulting seed was used to produce foundation seed at Yuma, Arizona in 1993.

A variant that is similar to Aruba but is 10cm to 15cm taller, occurs at a frequency of .05%.

ARUBA is a stable and uniform cultivar in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support stability is presented in the tables. The selection criteria used during the breeding of Aruba were high yield, higher protein than WestBred Turbo, good test weight, semidwarf growth habit, better semolina color than WestBred Turbo, good sedimentation values higher hard amber vitreous counts than WestBred Turbo and excellent lodging resistance.



# Western Plant Breeders

**"Breeders of WestBred™ Varieties"**

April 29, 1995

Mr. Alan A. Atchley  
USDA/AMS/SD  
Plant Variety Protection Office  
10301 Baltimore Blvd.  
Beltsville, MD 20705-2351

SUBJECT: PV Application 9500011, Wheat variety 'Aruba'

Dear Alan:

Addendum to Exhibit A: Stability and uniformity have been observed in Aruba over four generations.

Revised Exhibit E: The variety 'Aruba' for which Plant Variety Protection is hereby sought was developed by Kim C. Shantz, an employee of Western Plant Breeders, Inc., all rights to any invention, discovery, or development made by the employee while employed by Western Plant Breeders, Inc., were assigned to Western Plant Breeders, Inc. with no rights of any kind retained by the employee.

Western Plant Breeders, Inc. requests that the variety 'Aruba' be issued a certificate of Plant Variety Protection under the revised PVP act of 1994.

Sincerely,

Kim Shantz  
Wheat Breeder

14b.

## Novelty Statement

ARUBA is a day length insensitive spring durum wheat with an average height of 89 centimeters which is 7 centimeters shorter than WestBred Turbo. Aruba most resembles WestBred Turbo but differs in that Aruba has anthocyanin present in its stem and auricles while WestBred Turbo has none present. Aruba has green colored leaves with waxy bloom. The flag leaf is twisted and erect. The stems are white, strong, hollow, and have waxy bloom. The spikes are long, midwide, dense, erect, and oblong with long black awns. The awns do not fade rapidly at harvest like the awns of WestBred Turbo. The long, wide glumes have shoulders that are narrow and square. The beaks are narrow, medium, and acuminate. Aruba has long, wide, and elliptical seeds with short, medium, non-collared brushes. The crease is narrow and shallow. The cheeks are rounded and the germ size is large. The above comparisons along with the objective description (14e.) show Aruba to be a novel variety of durum wheat.

U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, MEAT, GRAIN AND SEED DIVISION  
BELTSVILLE, MARYLAND 20785

EXHIBIT C  
(Wheat)

## OBJECTIVE DESCRIPTION OF VARIETY

WHEAT (TRITICUM SPP.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Western Plant Breeders, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

8111 Timberline Drive  
Bozeman, MT 59715

FOR OFFICIAL USE ONLY

PVPO NUMBER

9500011

VARIETY NAME OR TEMPORARY DESIGNATION

ARUBA

Place the appropriate number that describes the varietal character of this variety in the boxes below.  
Place a zero in first box (e.g. 089 or 09 ) when number is either 99 or less or 9 or less.

## 1. KIND:

2 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

## 2. TYPE:

1 1 = SPRING 2 = WINTER 3 = OTHER (Specify) 2 1 = SOFT 2 = HARD 3 = OTHER (Specify)

1 1 = WHITE 2 = RED 3 = OTHER (Specify)

## 3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:

1 0 3 FIRST FLOWERING 1 0 8 LAST FLOWERING

## 4. MATURITY (50% Flowering):

8 NO. OF DAYS EARLIER THAN 6 1 = ARTHUR 2 = SCOUT 3 = CHRIS  
4 NO. OF DAYS LATER THAN 7 4 = LEMHI 5 = NUGAINE 6 = LEEDS  
7 = WestBred Turbo 8 = WestBred 881

## 5. PLANT HEIGHT (From soil level to top of head):

8 9 CM. HIGH  
0 CM. TALLER THAN 8  
7 CM. SHORTER THAN 7 1 = ARTHUR 2 = SCOUT 3 = CHRIS  
4 = LEMHI 5 = NUGAINE 6 = LEEDS

## 6. PLANT COLOR AT BOOTING (See reverse):

2 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

## 7. ANTHR COLOR:

1 1 = YELLOW 2 = PURPLE

## 8. STEM:

2 Anthocyanin: 1 = ABSENT 2 = PRESENT 2 Waxy bloom: 1 = ABSENT 2 = PRESENT  
1 Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT 1 Internodes: 1 = HOLLOW 2 = SOLID  
5 NO. OF NODES (Originating from node above ground) 1 7 CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

## 9. AURICLES:

2 Anthocyanin: 1 = ABSENT 2 = PRESENT 1 Hairiness: 1 = ABSENT 2 = PRESENT

## 10. LEAF:

1 Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER (Specify) 2 Flag leaf: 1 = NOT TWISTED 2 = TWISTED  
1 Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT 2 Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT  
2 2 MM. LEAF WIDTH (First leaf below flag leaf) 3 1 CM. LEAF LENGTH (First leaf below flag leaf)

## 11. HEAD:

- ☐ 2 Density: 1 = LAX 2 = DENSE ☐ 2 Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify) \_\_\_\_\_
- ☐ 4 Awedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED
- ☐ 1 Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER (Specify) \_\_\_\_\_
- ☐ 1 0 CM. LENGTH ☐ 1 5 MM. WIDTH

## 12. GLUMES AT MATURITY:

- ☐ 3 Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.) 3 = LONG (CA. 9 mm.) ☐ 3 Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.) 3 = WIDE (CA. 4 mm.)
- ☐ 4 Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE ☐ 3 Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

## 13. COLEOPTILE COLOR:

- ☐ 1 1 = WHITE 2 = RED 3 = PURPLE

## 14. SEEDLING ANTHOCYANIN:

- ☐ 1 1 = ABSENT 2 = PRESENT

## 15. JUVENILE PLANT GROWTH HABIT:

- ☐ 3 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

## 16. SEED:

- ☐ 3 Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL ☐ 1 Check: 1 = ROUNDED 2 = ANGULAR
- ☐ 1 Brush: 1 = SHORT 2 = MEDIUM 3 = LONG ☐ 1 Brush: 1 = NOT COLLARED 2 = COLLARED
- ☐ Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK
- ☐ 2 Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) \_\_\_\_\_
- ☐ 8 MM. LENGTH ☐ 4 MM. WIDTH ☐ 5 3 GM. PER 1000 SEEDS

## 17. SEED CREASE:

- ☐ 1 Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI' ☐ 1 Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

## 18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 STEM RUST (Races) ☐ 0 LEAF RUST (Races) ☐ 0 STRIPE RUST (Races) ☐ 0 LOOSE SMUT
- ☐ 0 POWDERY MILDEW ☐ 0 BUNT ☐ 0 OTHER (Specify) \_\_\_\_\_

## 19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

- ☐ 0 SAWFLY ☐ 0 APHID (Bydv.) ☐ 0 GREEN BUG ☐ 0 CEREAL LEAF BEETLE
- ☐ OTHER (Specify) \_\_\_\_\_ HESSIAN FLY RACES: ☐ GP ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

## 20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	WestBred Turbo	Seed size	WestBred Turbo
Leaf size	" "	Seed shape	" "
Leaf color	" "	Coleoptile elongation	" "
Leaf carriage	" "	Seedling pigmentation	" "

## INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

TABLE 1

Yield in pounds per acre of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix, AZ	1989	6682	7654	6521	7347
	1990	7258	7616	6643	7488
	1991	9574	8934	8384	8474
	1992	7322	7616	7565	7616
Phoenix, Late AZ	1990	5594	6003	6362	5274
	1991	7309	8166	7923	7846
	1992	5537	4956	5346	5574
El Centro, CA	1990	6003	6200	5440	5680
	1991	8621	8141	8022	8494
	1992	5394	6132	4902	6397
San Joaquin, CA	1990	8078	8459	8582	8405
	1991	8470	8712	8204	6945
Yuma, AZ	1992	6816	8035	6631	7861
		<hr/>	<hr/>	<hr/>	<hr/>
		7150	7433	6963	7185



TABLE 2

Percent protein of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix,	1989	13.8	12.9	11.8	13.6
AZ	1990	13.2	12.7	12.5	13.5
	1991	14.3	14.1	12.8	14.8
	1992	12.4	11.9	11.5	12.5
Phoenix,	1990	13.7	13.5	11.9	14.5
Late AZ	1991	14.3	13.4	12.2	14.6
	1992	13.8	14.2	13.6	14.3
El					
Centro,	1990	10.2	9.9	10.1	10.5
CA	1991	14.7	14.1	13.2	14.7
	1992	14.7	14.5	13.3	15.0
San					
Joaquin,	1990	12.6	12.1	11.7	12.5
CA	1991	13.9	13.2	12.8	14.9
Yuma, AZ	1992	14.7	14.0	13.3	14.8
		<hr/>	<hr/>	<hr/>	<hr/>
		13.6	13.1	12.4	13.9

TABLE 3

Semolina color of ARUBA and presently grown varieties in Western Plant Breeders' trials. \*

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix,	1989	2.0	2.5	3.0	2.0
AZ	1990	2.0	3.0	3.5	2.0
	1991	2.0	2.5	3.0	2.0
	1992	2.5	3.0	3.7	2.8
Phoenix,	1990	2.5	3.5	3.5	2.5
Late AZ	1991	2.0	2.5	3.0	2.0
	1992	2.6	2.7	3.3	2.7
El					
Centro,	1990	2.0	3.0	3.3	2.0
CA	1991	2.5	3.0	3.5	2.0
	1992	2.5	3.3	4.0	2.3
San					
Joaquin,	1990	2.0	3.0	4.0	2.5
CA	1991	2.0	2.5	3.5	2.5
Yuma, AZ	1992	3.0	3.0	4.0	2.7
		<hr/>	<hr/>	<hr/>	<hr/>
		2.3	2.8	3.4	2.3

\* Lower number is better.

1 = excellent semolina color

5 = poor semolina color

TABLE 4

Sedimentation of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix,	1989	33	30	24	31
AZ	1990	33	27	24	28
	1991	33	30	26	30
	1992	34	33	28	31
Phoenix,	1990	37	32	26	34
Late AZ	1991	31	30	26	32
	1992	39	34	31	33
El					
Centro,	1990	31	33	25	31
CA	1991	35	32	27	33
	1992	40	35	29	39
San					
Joaquin,	1990	30	31	24	31
CA	1991	35	32	30	33
Yuma, AZ	1992	36	34	30	35
		<hr/>	<hr/>	<hr/>	<hr/>
		34.4	31.8	26.9	32.4

TABLE 5

Plant height of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix,	1989	32	38	33	34
AZ	1990	33	35	39	38
	1991	37	37	38	39
	1992	36	42	39	37
Phoenix,	1990	34	37	37	36
Late AZ	1991	35	40	38	37
El					
Centro,	1990	32	36	34	31
CA	1991	38	38	37	37
	1992	36	36	38	36
San					
Joaquin,	1990	35	37	37	35
CA	1991	36	39	38	36
		34.9	37.7	37.1	36

TABLE 6

Days to anthesis after March 1 of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix,	1989	27	27	23	27
AZ	1990	31	30	27	31
	1992	39	34	28	37
Phoenix,	1991	49	45	44	47
Late AZ					

TABLE 7

Percent lodging of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix,	1990	25	60	83	20
AZ	1991	3	63	53	13
	1992	13	58	48	18
Phoenix,	1990	0	25	25	0
Late AZ	1991	0	20	50	0
El					
Centro,	1991	0	30	13	0
CA	1992	0	53	73	0
San					
Joaquin,	1990	38	28	58	3
CA					
Yuma, AZ	1992	28	65	85	25
		<hr/>	<hr/>	<hr/>	<hr/>
		12%	45%	54%	9%

TABLE 8

Hard amber vitreous counts of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
ElCentro					
CA	1990	41	27	21	43

TABLE 9

Percent black point of ARUBA and presently grown varieties in Western Plant Breeders' trials.

<u>LOCATION</u>	<u>YEAR</u>	<u>ARUBA</u>	WestBred <u>TURBO</u>	Yavaros <u>-79</u>	<u>PH103-3</u>
Phoenix, AZ	1992	12	14	18	10
Yuma, AZ	1992	59	51	43	45
ElCentro CA	1992	41	54	35	21

Table 10

9500011

Grain quality of ARUBA compared to WestBred TURBO in Western Plant Breeders' trials.

	<u>ARUBA</u>				<u>WESTBRED TURBO</u>			
	1990	PHX LATE	1991	EL Centro	1990	PHX LATE	1991	EL Centro
	PHX		PHX		PHX		PHX	
Test Wgt	62.7	62.5	63.7	63.9	64.0	63.9	64.3	65.0
1000 K Wgt	46.9	44.6	54.9	54.1	55.2	49.5	56.2	57.1
Wht Ash	1.53	1.6	1.36	1.5	1.63	1.51	1.48	1.45
Wht Pro	11.7	12.7	13.8	14.1	11.6	12.5	13.3	13.9
Total extract	77.9	80.0	81.9	82.5	79.0	81.0	83.5	82.8
Semolin extract	62.5	64.3	61.8	62.9	63.4	63.4	64.0	63.1
Specks	37	30	37	33	53	30	37	33
Semolin ash	.70	.71	.54	.59	.75	.67	.54	.58
Dust color	10.0	10.5	9.5	9.0	10.5	10.0	8.5	8.0
Mix score	5	6	4	4	4	5	3	3
Semo Protein	10.7	11.7	12.6	12.8	10.6	11.5	11.8	12.5
Visual color	10.0	10.5	9.5	9.0	10.5	10.0	8.5	8.0
Cookwgt	31.6	32.9	32.7	32.5	32.8	32.9	32.7	30.8
Firmnes	5.5	6.2	6.1	6.5	5.5	6.2	5.4	6.1
Residue	6.7	6.6	4.9	6.0	7.4	6.4	6.5	6.5
Alveo graph W	--	--	148	96	--	--	103	103
P/L	--	--	2.1	1.2	--	--	3.3	1.9